

SWAC C&D Subcommittee Meeting

MassDEP Bureau of Air & Waste

June 14, 2018: 10:00 AM – 12:00 AM

One Winter Street, Boston



Agenda

- Welcome/Introductions
- C&D Action Plan Development
 - C&D Wood Market Analysis
 - Improve C&D Processor Performance
- *Technology Showcase:* Zen Robotics (Plexus Recycling Technologies)
- CDRA updates by Bill Turley
- MassDEP Updates:
 - Source separation Pilot Initiative
 - MassDOT engagement
 - RBDG
- Next Steps/Closing

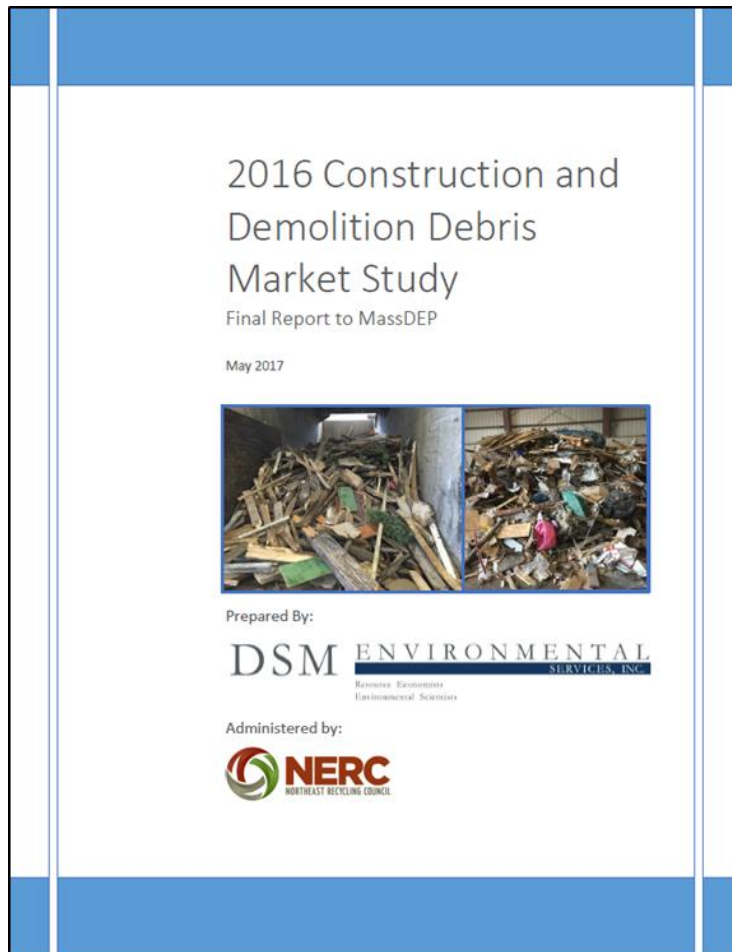
Development of C&D Action Plan

- 2018 C&D Subcommittee Meetings – continue refining themes under consideration
 - March 28, 2018
 - June 14, 2018
 - October 18, 2018
- Draft plan in 2019
 - Translate themes into draft targets and objectives
 - Incorporate C&D Action Plan into draft SWMP for public review and comment
- Final plan in 2020

Development of C&D Action Plan

- Themes emerging from stakeholder input
 1. Jobsite Waste Management
 - Promote waste re-use, reduction and separation at the job site
 2. Enhance C&D Facility Performance
 - Improve performance of existing C&D waste bans
 - **Improve recovery rates at C&D Handling facilities**
 3. Develop End Markets
 - **Expand existing/new wood markets**
 - Identify outlets for C&D Fines
 - Promote interagency cooperation with MassDOT, DCAM, etc.

C&D Wood Market Analysis



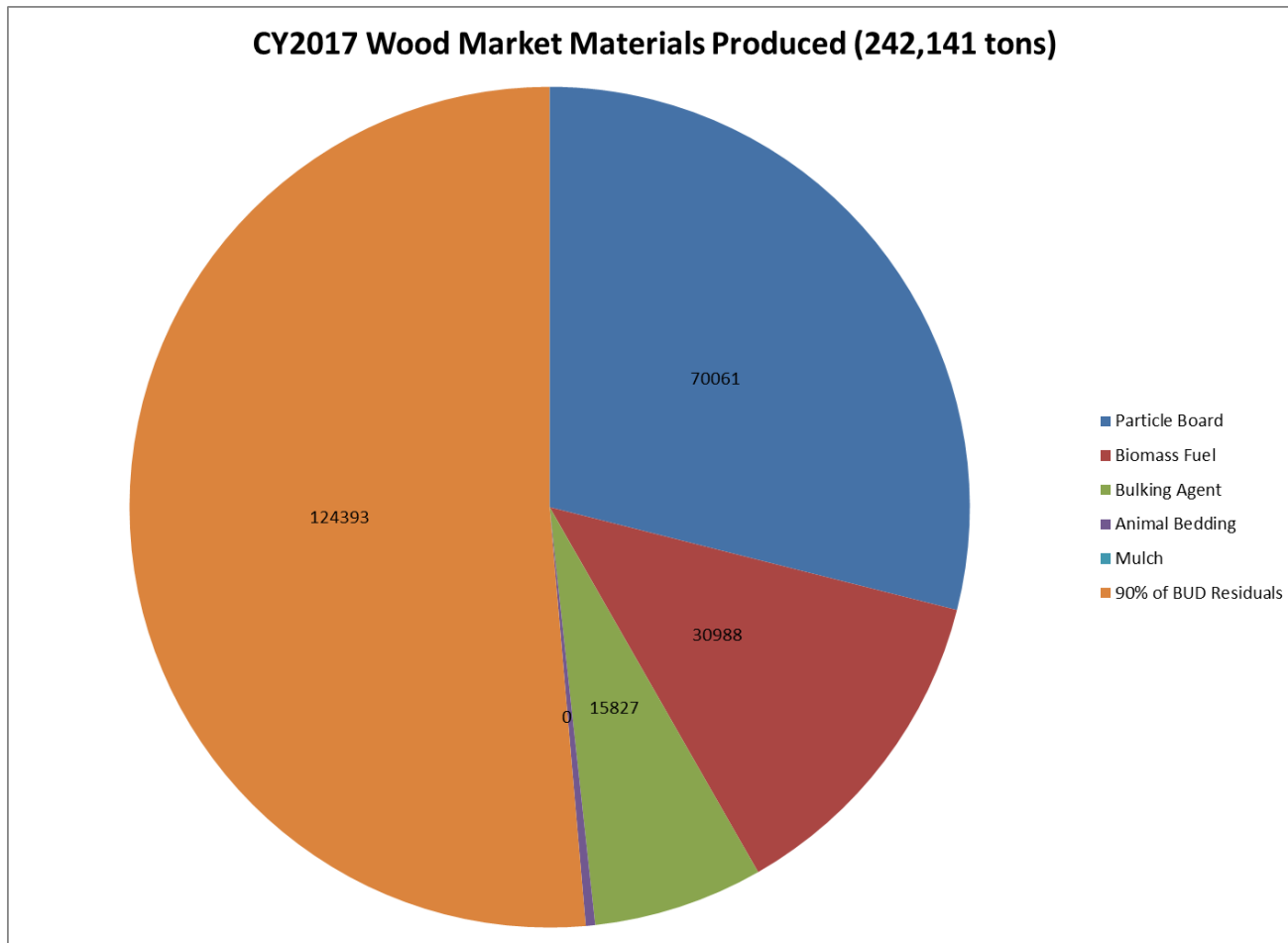
Material Category	INCOMING (%, By Weight)	Marketability	WASTE
			RESIDUALS (%, By Weight)
PAPER	2.3%		6.3%
OCC/Kraft	1.4%	H	3.3%
PLASTIC	2.5%		8.6%
Rigids	0.9%	M	4.5%
Film	0.1%	L	1.2%
ORGANICS	3.1%		3.9%
Yard Waste	1.3%	H	0.2%
Carpet/Padding	1.5%	L	3.7%
C&D	78.6%		74.5%
Concrete/Brick/Rock	2.1%	H	0.4%
Asphalt Roofing	11.3%	M	8.5%
"A Wood"	27.5%	H	22.3%
"B Wood"	10.6%	M	6.3%
Clean Gypsum Board	2.6%	L	3.0%
METAL	4.6%		2.5%
Ferrous	3.7%	H	1.2%
Non-Ferrous	1.2%	M	1.3%

TABLE 4 - Comparison, By Weight, of Incoming and Residual Composition for Marketable Materials (Potentially Marketable Materials Only)

Source: 2016 C&D Debris Market Study (May 2017, DSM/NERC)

<https://www.mass.gov/files/documents/2017/05/zp/2016study.pdf>

C&D Wood Market Analysis



Facility Ranking for Inbound Source Separated Wood Received

	CY2017		
Facility	Inbound Source Separated Wood	Total Material Accepted	% of Total accepted
CMM	7963	92039	8.65%
E.L. Harvey	6163	106245	5.80%
SRT	4453	91221	4.88%
NBWS	2718	61158	4.44%
RER	1051	162591	0.65%
Harvey Fitchburg	986	9934	9.93%
Raynham	579	45851	1.26%
AKS	216	41682	0.52%
Devens	0	114608	0.00%
NER	0	129323	0.00%
TBI	0	48470	0.00%
Trojan	0	83950	0.00%
Tri County	0	58401	0.00%
Western	0	607	0.00%
K&W	0	29493	0.00%
Totals	24129	1075573	2.24%

Facility Ranking for Particle Board Material Produced

	CY2017		
Facility	Feedstock for particle board	C&D Waste Accepted	% of C&D Waste
SRT	23791	72275	32.92%
CMM	10922	74065	14.75%
E.L. Harvey	11790	89269	13.21%
NBWS	3047	31888	9.56%
Devens	9004	94913	9.49%
RER	9961	143622	6.94%
Raynham	1546	41853	3.69%
AKS	0	37754	0.00%
Harvey Fitchburg	0	5090	0.00%
NER	0	109072	0.00%
TBI	0	30608	0.00%
Trojan	0	26115	0.00%
Tri County	0	1854	0.00%
Western	0	111	0.00%
K&W	0	24493	0.00%
Totals	70061	782982	8.95%

Facility Ranking for Biomass Fuel Material Produced

	CY2017		
Facility	Fuel for biomass	C&D Waste Accepted	% of C&D Waste
TBI	5588	30608	18.26%
NER	12900	109072	11.83%
E.L. Harvey	8558	89269	9.59%
NBWS	2752	31888	8.63%
K&W	1033	24493	4.22%
Tri County	46	1854	2.48%
RER	111	143622	0.08%
AKS	0	37754	0.00%
CMM	0	74065	0.00%
Devens	0	94913	0.00%
Harvey Fitchburg	0	5090	0.00%
Raynham	0	41853	0.00%
SRT	0	72275	0.00%
Trojan	0	26115	0.00%
Western	0	111	0.00%
Totals	30988	782982	3.96%

Facility Ranking for BUD-Residual Materials Produced (LDU Roadbase and ADC)

	CY2017		
Facility	Residuals for LDU/BUD (Roadbase & ADC)	C&D Waste Accepted	% of C&D Waste
Raynham	20754	41853	49.59%
CMM	27713	74065	37.42%
SRT	25124	72275	34.76%
NER	26207	109072	24.03%
Devens	20716	94913	21.83%
RER	17324	143622	12.06%
NBWS	376	31888	1.18%
AKS	0	37754	0.00%
E.L. Harvey	0	89269	0.00%
Harvey Fitchburg	0	5090	0.00%
K&W	0	24493	0.00%
TBI	0	30608	0.00%
Trojan	0	26115	0.00%
Tri County	0	1854	0.00%
Western	0	111	0.00%
Totals	138214	782982	17.65%

Assume 90% wood content

Improve C&D Facility Performance

Ideas/Suggestions

- Minimum Performance standard for diversion
 - If standard not met; Mixed C&D waste/Waste Residuals must be transferred to facility that meets standard
 - Already incorporated in ATO renewals at 3 facilities in SERO
 - Include Bulky/DTM in calculation
 - $(\text{Recycled} + \text{biomass fuel}) / \text{Total inbound accepted (less residuals)}$
 - Divert banned materials to greatest extent possible
 - Clarify terms: Mix C&D waste; Bulky/DTM; Residuals
 - Ratchet up over time to improve performance
 - Distinct from recycling rate
 - $(\text{Recycled} + \text{biomass fuel}) / \text{C\&D waste received}$
 - RCI Certification option?

Improve C&D Facility Performance

Ideas/Suggestions

- Improved management of fines/residuals
 - Reduce quantities
 - Reduce undesirable components (e.g. gypsum)
 - Explore existing/new markets
- Financial Assistance with Technology/Equipment Upgrades
- What Else?

Zen Robotics

(Will Hancock of Plexus Recycling Technologies;
w.hancock@plexusrt.com; 720-459-1988)

TECHNOLOGY SHOWCASE

CDRA Updates

- Presented by Bill Turley, CDRA Executive Director
 - Status of C&D Fines documents
 - Gypsum Protocol
 - NHSM letters from U.S. EPA



MassDEP Updates

Source Separation Pilot Initiative

- Objective: Incentivize C&D jobsite source separation projects that can be translated into case studies
- Prioritize large projects in congested urban areas
- Four parallel pathways:
 - Partner with interested contractors
 - Identify qualified haulers
 - Partner with DCAM on Surplus Sites Management
 - Provide Financial/Technical Assistance
- RW will retain consultant with relevant experience
- Schedule & Deliverables: post successful C&D source separation case studies on RW website by year-end CY2018 and on continuous basis

MassDOT Engagement

- 4/30/2018: MassDEP met with Engineering Group in Hopkinton to discuss HMA, RAS, crumb rubber tire in HMA, other issues
- MassDOT sees little benefit to allowing use of RAS in HMA
 - Economics: more costly to Commonwealth; poorer performance life
 - Processing: remove contaminants, grind to size (wet grinding is a problem)
 - Asphalt hardness: air-blown binder; oxidation
 - Contractor use: modify SOPS to increase dwell times and operating temperatures to soften binder
 - RAS mixture performance: stiff binder susceptible to cracking and early pavement failure
 - No value as binder, only as aggregate (Prof. Walaa Mogawer, U-Mass Dartmouth, Highway Sustainability Research Center)
- MassDOT suggested evaluating use of RAS in “Reclaimed Asphalt”
 - Use milling machine to grind road and place down base aggregate material
 - May be able to introduce some fraction of RAS
- MassDOT willing to discuss developing spec for low intensity use roads
 - Skeptical that contractors will produce

Recycling Business Development Grant

RBDG: Intended to enhance waste reduction and recycling programs for Massachusetts based businesses.

- Grants awards range from \$50K to \$400K for eligible projects
- Match: award cannot exceed 25% of total investment
- Performance based component over 18 – 24 months

CY2018 Grant Cycle

- Application found at: <https://www.mass.gov/how-to/recycling-business-development-grants>
 - CY2018 target materials include: Construction and demolition wood - Clean Wood
- Two deadlines:
 - June 29, 2018
 - October 5, 2018

Any other business to discuss?

Next Steps/Closing

For More Information:

Point of Contact:

Mike Elliott

Asbestos/C&D Program Coordinator

MassDEP – Bureau of Air & Waste

One Winter Street

Boston, MA 02108

michael.elliott@state.ma.us

617-292-5575